

AN 1998-558709 [48] WPIDS  
DNN N1998-435625 DNC C1998-167363  
TI Lead-free tin-antimony-silver solder alloy - contains copper and-or nickel  
for improved mechanical and soldering properties.  
DC L03 M23 M26 P55  
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PA (FJIE) FUJI ELECTRIC CO LTD  
CYC 3

PI	DE 19816671	A1 19981022 (199848) *	14
	JP 10286689	A 19981027 (199902)	5<--
	JP 11058066	A 19990302 (199919)	5
	JP 11077366	A 19990323 (199922)	5
	US 6179935	B1 20010130 (200108)	
	JP 3296289	B2 20020624 (200243)	4
	JP 3353640	B2 20021203 (200281)	6
	JP 3353662	B2 20021203 (200281)	5
	DE 19816671	C2 20030918 (200361)	

ADT DE 19816671 A1 DE 1998-1016671 19980415; JP 10286689 A JP 1997-97828  
19970416; JP 11058066 A JP 1997-212969 19970807; JP 11077366 A JP  
1998-169937 19980617; US 6179935 B1 US 1998-59268 19980414; JP 3296289 B2  
JP 1998-169937 19980617; JP 3353640 B2 JP 1997-97828 19970416; JP 3353662  
B2 JP 1997-212969 19970807; DE 19816671 C2 DE 1998-1016671 19980415

FDT JP 3296289 B2 Previous Publ. JP 11077366; JP 3353640 B2 Previous Publ. JP  
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JP 1997-191391 19970716

AB DE 19816671 A UPAB: 19981203

A novel tin-based solder alloy contains greater than 0 and at most 3.5 weight% Sb, 0-3.0 weight% Ag and a predetermined amount of a property-improving first and/or second additive. Preferably, the first additive consists of greater than 0 and at most 1.0 weight% each of Cu and/or Ni and the second additive consists of greater than 0 and at most 1.0 weight% each of P and/or Ge. Also claimed is a novel tin-based solder alloy containing greater than 0 and at most 4.0 weight% Ag and greater than 0 and at most 2.0 weight% Cu and/or greater than 0 and at most 1.0 weight% Ni, optionally together with greater than 0 and at most 1.0 weight% each of P and/or Ge.

USE - For soldering metals in the assembly of semiconductor components.

ADVANTAGE - In the lead-free solder alloys, the first additive (Cu and/or Ni) provides improved heat resistance, strength, thermal fatigue strength, wetting properties, thermal fatigue strength and bonding strength to a copper substrate, while the second additive (P and/or Ge) provides oxidation resistance.

Dwg.1/3